

243 2/17/93 This is a #22

**CONTROLLED DOCUMENT**

EG&G - ROCKY FLATS PLANT  
ENVIRONMENTAL MANAGEMENT

~~This is a RED Stamp~~

**ROCKY FLATS PLANT  
EMD OPERATING  
PROCEDURES MANUAL**

Manual No.: **5-21200-OPS-EE**  
Procedure No.: **Table of Contents, Rev 4**  
Page: **1 of 2**  
Effective Date: **02/18/93**  
Organization: **Environmental Management**

**THIS IS ONE VOLUME OF A SIX VOLUME SET WHICH INCLUDES:**

**VOLUME I: FIELD OPERATIONS (FO)  
VOLUME II: GROUNDWATER (GW)  
VOLUME III: GEOTECHNICAL (GT)  
VOLUME IV: SURFACE WATER (SW)  
VOLUME V: ECOLOGY (EE)  
VOLUME VI: AIR (AP)**

**TABLE OF CONTENTS  
FOR VOLUME V: ECOLOGY**

<b>Procedure No.</b>	<b>Title</b>	<b>Rev. No.</b>	<b>Effective Date</b>
EE.01	Sampling of Periphyton	1	5/91
EE.02	Sampling of Benthic Macroinvertebrates	1	5/91
*DCN 92.01	EXPIRED (Clarification of Benthic Macroinvertebrates) This DCN was extended by DCN 93.01 dated 2/17/93	1	Expired
*DCN 93.01	Clarification of Benthic Macroinvertebrates	1	02/17/93
EE.03	Sampling of Plankton	1	5/91
EE.04.	Sampling of Fishes	1	5/91
*DCN.92.01	EXPIRED (Add Paper Scale Envelopes)	1	Expired
*DCN 92.02	EXPIRED (Clarification of Fish Sampling)	1	Expired
*DCN 92.03	EXPIRED (Clarification of Fish Sampling)	1	Expired
*DCN 92.04	EXPIRED (Clarification of Fish Sampling)	1	Expired
*DCN 92.05	EXPIRED (Clarification of Fish Sampling)	1	Expired
EE.05	Sampling of Large Mammals	1	5/91
EE.06	Sampling of Small Mammals	1	5/91
EE.07	Sampling of Birds	1	5/91

**DOCUMENT CLASSIFICATION REVIEW WAIVER  
PER R.B. HOFFMAN, CLASSIFICATION OFFICE  
JUNE 11, 1991**

**ADMIN RECORD**

A-SW-001064

**ROCKY FLATS PLANT  
EMD OPERATING  
PROCEDURES MANUAL**

**Manual No.: 5-21200-OPS-EE**  
**Procedure No.: Table of Contents, Rev 4**  
**Page: 2 of 2**  
**Effective Date: 02/18/93**  
**Organization: Environmental Management**

<b>Procedure No.</b>	<b>Title</b>	<b>Rev. No.</b>	<b>Effective Date</b>
EE.08	Sampling of Reptiles and Amphibians	1	5/91
EE.09	Sampling of Terrestrial Arthropods	1	5/91
EE.10	Sampling of Vegetation	1	5/91
DCN 91.01	Superseded by DCN # 92.01	1	08/11/92
*DCN 92.01	EXPIRED (To Clarify Methods for Conducting Vegetation Surveys) This DCN was extended by DCN 93.01 dated 2/17/93	1	Expired
*DCN 93.01	To Clarify Methods for Conducting Vegetation Surveys	1	02/17/93
EE.11	Identification of Habitat Types	1	5/91
EE.12	Sampling of Soil for Soil Description	1	5/91
EE.13	Development of Ecology Field Sampling Plans	1	5/91
DCN 91.01	Superseded by DCN # 92.01	1	08/11/92
*DCN 92.01	EXPIRED (The Outline for a Field Sampling Plan is Modified) This DCN was extended by DCN 93.01 dated 2/17/93	1	Expired
*DCN 93.01	The Outline for a Field Sampling Plan is Modified	1	02/17/93
APPA	Appendix A: Species Codes Assignment of Species Codes	1	5/91
APPB	Appendix B: Wildlife Habitat Code Assignment of Wildlife Habitat Codes	1	5/91

5-21200-OPS-EE.13, Rev. 1 DF  
mcb 2/15/93

This is a #22  
**CONTROLLED DOCUMENT ENVIRONMENTAL MANAGEMENT**  
EG&G - ROCKY FLATS PLANT  
**ENVIRONMENTAL MANAGEMENT DOCUMENT CHANGE NOTICE (DCN)**  
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Procedure Number 5-21200-OPS-EE.13, Rev. 1 DF  
mcb 2/15/93

Page 1 of 5

Title	Development of Ecology Field Sampling Plans	Date	2-17-93 1/20/93 mcb 2/10/93	DCN Number	5-21200-93.01/mcb
Expires	1/20/93 mcb 2/10/93	2/17/94	Procedure Revision Required <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Scope Limitation	N/A				

Item Number	Page	Step or Paragraph	Changes (Use DCN CONTINUATION SHEET for Additional Space)
1	20	Sec. 6.5	The outline for a field sampling plan shall be modified as per Attachment 1. (See Attachment).

Justification (Reason for Change - Provide Numbers To Reference Corresponding Items Above)

1. This is an extension for expired DCN 92.01 during which time the SOP is being revised to incorporate this DCN.

**DOCUMENT CLASSIFICATION REVIEW WAIVER**  
**PER R.B. HOFFMAN, CLASSIFICATION OFFICE**  
**JUNE 11, 1991**

Concurrence	Organization	Req	Date	Concurrence	Organization	Req	Date
<i>[Signature]</i>	QAPM	X	2/14/93	<i>[Signature]</i>	User	X	1/22/93
				<i>[Signature]</i>	FOM		2/3/93
				<i>[Signature]</i>	EQS		2-15-93
				<i>[Signature]</i>	EQS		
Approval of Responsible Manager	Date	Is Posting Req'd?	If Yes, By What Date?	Date Posted			
<i>[Signature]</i>	1/22/93	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Upon receipt				

## Field Sampling Plan Outline

DCN # 93.01

### I. Site Background

#### A. Study site detail

##### 1. Operable Unit description

- a. location at RFP, areal extent including potential zone of influence
- b. IHSS's within the OU
- c. overview of the ecology at the OU
  1. vegetation / habitats
  2. wildlife
  3. aquatics / habitats

##### 2. Synopsis of OU specific contamination information

- a. Brief summary of RI activities completed at the site to-date
- b. List of contaminants detected at the OU
- c. References to other documents containing RI results

##### 3. Preliminary toxicity assessment

- a. Summary of the concentrations of contaminants detected
- b. Standards, ARARs, or limits set for the ecology risk assessment
- c. Summary of contaminant levels exceeding applicable limits
- d. Brief assessment of potential exposure pathways for biota

### II. Program Objectives

#### A. Purpose and scope of Environmental Evaluations

1. Purpose and scope of the OU EE
2. General objectives of the OU EE
3. Summary of EE DQOs

#### B. Purpose and scope of the Field Sampling Plan

1. FSP application of COCs
2. FSP application of selected Target Taxa

#### C. General Field Sampling Approach

1. ecological studies
2. analytical studies

### III. Habitat and Taxon-Specific Sampling

#### A. Study Locations

##### 1. Sampling Sites

- a. rationale for OU sampling site selection
- b. identification of OU sampling sites

##### 2. Reference Sites

- a. rationale for reference site selection
- b. identification of reference sites
- c. Differences between study sites and reference sites

##### 3. Overlap of study objectives among different OUs

#### B. Terrestrial sampling

##### 1. Plants

- a. Sampling objectives
- b. Sample locations
  1. study sites

DCN # 93.01

- 2. reference sites
    - c. Sampling equipment and procedures
      - 1. state methods and reference SOPs
    - d. Sampling frequency
      - 1. list sample size
      - 2. sample times and dates
    - e. QA/QC sampling
  - 2. Insects
    - a. Sampling objectives
    - b. Sample locations
      - 1. study sites
      - 2. reference sites
    - c. Sampling equipment and procedures
      - 1. state methods and reference SOPs
    - d. Sampling frequency
      - 1. list sample size
      - 2. sample times and dates
    - e. QA/QC sampling
  - 3. Birds
    - a. Sampling objectives
    - b. Sample locations
      - 1. study sites
      - 2. reference sites
    - c. Sampling equipment and procedures
      - 1. state methods and reference SOPs
    - d. Sampling frequency
      - 1. list sample size
      - 2. sample times and dates
    - e. QA/QC sampling
  - 4. Mammals
    - a. Sampling objectives
    - b. Sample locations
      - 1. study sites
      - 2. reference sites
    - c. Sampling equipment and procedures
      - 1. state methods and reference SOPs
    - d. Sampling frequency
      - 1. list sample size
      - 2. sample times and dates
    - e. QA/QC sampling
- C. Aquatic sampling
- 1. Plants
    - a. Sampling objectives
    - b. Sample locations
      - 1. study sites
      - 2. reference sites
    - c. Sampling equipment and procedures
      - 1. state methods and reference SOPs

- d. Sampling frequency
  - 1. list sample size
  - 2. sample times and dates
- e. QA/QC sampling
- 2. Invertebrates
  - a. Sampling objectives
  - b. Sample locations
    - 1. study sites
    - 2. reference sites
  - c. Sampling equipment and procedures
    - 1. state methods and reference SOPs
  - d. Sampling frequency
    - 1. list sample size
    - 2. Sample times and dates
  - e. QA/QC sampling
- 3. Amphibians
  - a. Sampling objectives
  - b. Sample locations
    - 1. study sites
    - 2. reference sites
  - c. Sampling equipment and procedures
    - 1. state methods and reference SOPs
  - d. Sampling frequency
    - 1. list sample size
    - 2. sample times and dates
  - e. QA/QC sampling
- 4. Fishes
  - a. Sampling objectives
  - b. Sample locations
    - 1. study sites
    - 2. reference sites
  - c. Sampling equipment and procedures
    - 1. state methods and reference SOPs
  - d. Sampling frequency
    - 1. list sample size
    - 2. Sample times and dates
  - e. QA/QC sampling

#### IV. Contaminants of Concern and Target Taxa

##### A. Contaminants of Concern (COC)

- 1. Criteria for selection of COCs
- 2. Preliminary selection of COCs
  - a. Justification for application of selection criteria

##### B. Ecological receptors of concern

- 1. Criteria for selection of ecological receptors of concern
- 2. Preliminary taxa and tissues selected as ecological receptors of concern
  - a. Justification for application of selection criteria

DCN # 93.01

## V. Sample Handling and Analysis

### A. Terrestrial

1. Sample designation
  - a. taxa
  - b. tissues
  - c. number of samples and sample coding
  - d. samples from study sites vs. samples from reference sites
  - e. laboratory QA sample requirements
2. Chemical analyses
  - a. selection of target analytes
  - b. laboratory requirements
    1. sample volumes
    2. sample preservation & handling
3. Terrestrial Sampling Matrix

### B. Aquatic

1. Sample designation
  - a. taxa
  - b. tissues
  - c. number of samples and sample coding
  - d. samples from study sites vs. samples from reference sites
  - e. laboratory QA sample requirements
2. Chemical analyses
  - a. selection of target analytes
  - b. laboratory requirements
    1. sample volumes
    2. sample preservation & handling
3. Aquatic Sampling Matrix

## VI. Toxicity Testing

1. Sampling objectives
2. Sample locations
  - a. media to be collected
3. Sampling equipment and procedures (reference to SOPs)
4. Sampling frequency
5. QA/QC sampling
6. Sample Handling and Analyses
  - a. species and protocols used
  - b. laboratory QA